Shared Vision Planning

Institute for Water Resources

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Is it a **technical** question or a question of **values?**

- *Planning is made more difficult when we allow the decision process to confuse "is and ought"; When we allow technical analyses of the "is" to obscure appropriate debate about the "ought"; when we allow interests and value conflicts to be shrouded by an impenetrable fog of technical analyses. . . Bill Lord*

- *Bad water management often occurs when :*
  - *Facts are confused with values*
  - *Means are confused with ends, and*
  - *Technical judgments are made by citizens and politicians while value judgments are made by scientists and professionals . . . Bill Lord*

- *The most fundamental flaw in contemporary water policy is that many value questions in which ordinary citizens have a great interest are being framed as technical questions. . . Helen Ingram and Anne Schneider*

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Conflict in Water Supply Planning

"What is?" **vs. "What ought to be?"**

- What is instream flow if we operate a reservoir this way?
- What is per capita water consumption under this conservation program?
- What is the risk of a water shortage in the next 10 years?

- What ought to be minimum instream flows?
- What water conservation measures ought the public be required to do?
- What water supply risks ought the public assume?

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What is Shared Vision Planning?

Shared Vision Planning incorporates tried-and-true planning principles and technical analysis and collaboration into a practical forum for making resource management decisions.

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Built on Tradition + Innovation

- Principles and Standards grew out of the systems concepts applied by the Harvard Water Program
- P&S and P&G lent rigor to analysis but were designed to assess investments in new water projects
- But many water conflicts now are water management issues – drought, water quality, demand management – managed at several levels of government
- 1988 droughts in U.S. led to innovative adaptation of P&S to management

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SVP Foundations: Planning Principles

Based on Time-Tested Planning Principles

1. *Build a team* and identify problems.
2. Develop objectives and metrics for evaluation
3. Describe the status quo; what will the future look like if we do nothing?
4. Formulate alternatives to the status quo.
5. Evaluate alternatives and develop study team recommendations.
6. *Institutionalize* the project or plan.
7. *Exercise and update* the project or plan (adaptive management).

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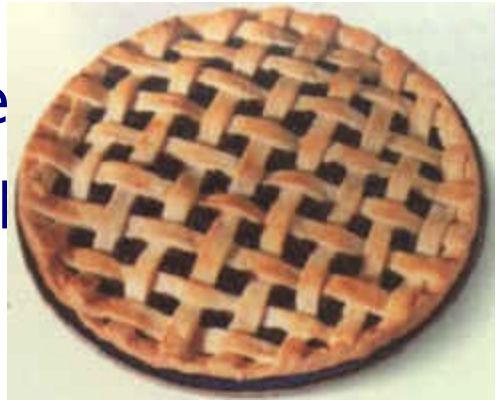
SVP Foundations: Collaboration

- Collaborative negotiation can shape preferences through mutual understanding of each other's interests and values,
- Can lead to the collaborative development of creative alternatives.
- Can be a transformative process and not simply a way of dividing up the pie.
- Don't set up a battle over a fixed pie

but encourage people to find a bigger p



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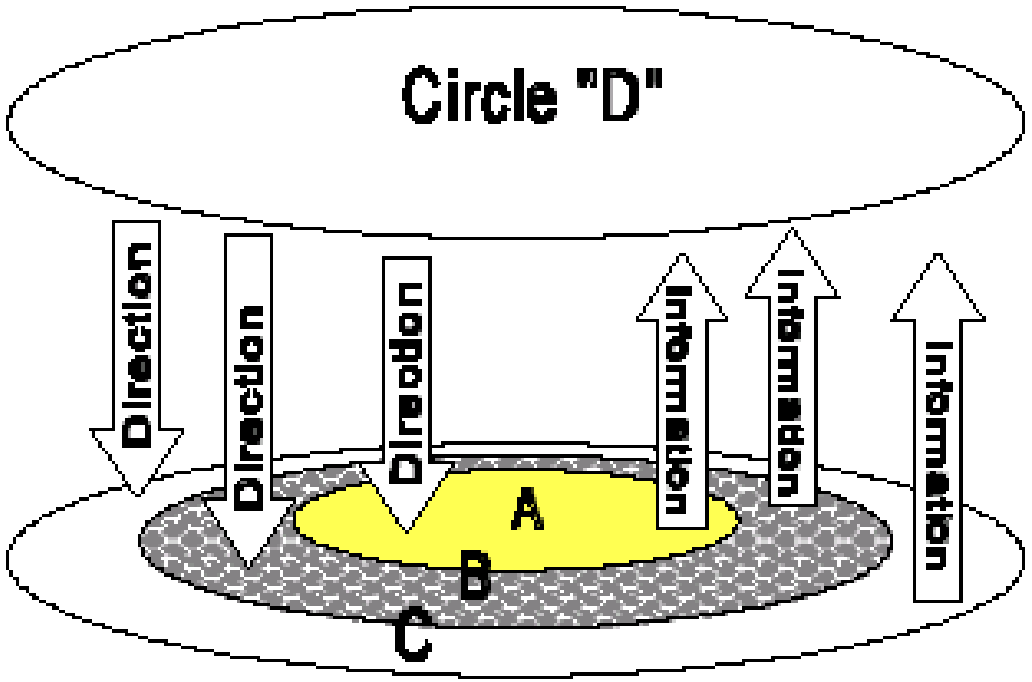
SVP Foundations: Collaboration

- "Circles of influence" concepts promote team building
- Concentric circles link representatives with differing levels of personal involvement



Circle A – Model Building team

Circle B – Model Users, validaters

Circle C – All interested parties

Circle D – Political Decision

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SVP foundations: Technical Analysis Models

- Decision-participants cannot decide “what ought to be” without first knowing “what is.”
- Computer models identify how multiple elements in a water resource system relate to one another.
- Computer models used in shared vision planning are called “shared vision models” (SVM).

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SVP foundations: Technical Analysis Models

- SVMs are the tools that set shared vision planning apart from other “collaborative” processes.
- SVMs provide the technical rigor necessary in a successful planning process
- Do not replace traditional models, but dynamically link them to decision-making
- The distinguishing difference – these models are built collaboratively with stakeholders, experts and decision makers

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SVP foundations: Technical Analysis Models

- SVMs help planning participants answer, "what is" questions:

If A happens, what will happen to B.

- The model does *not* pretend to make judgments on what ought to happen

What is the best plan? or

Is Plan B good or bad, desirable or undesirable?

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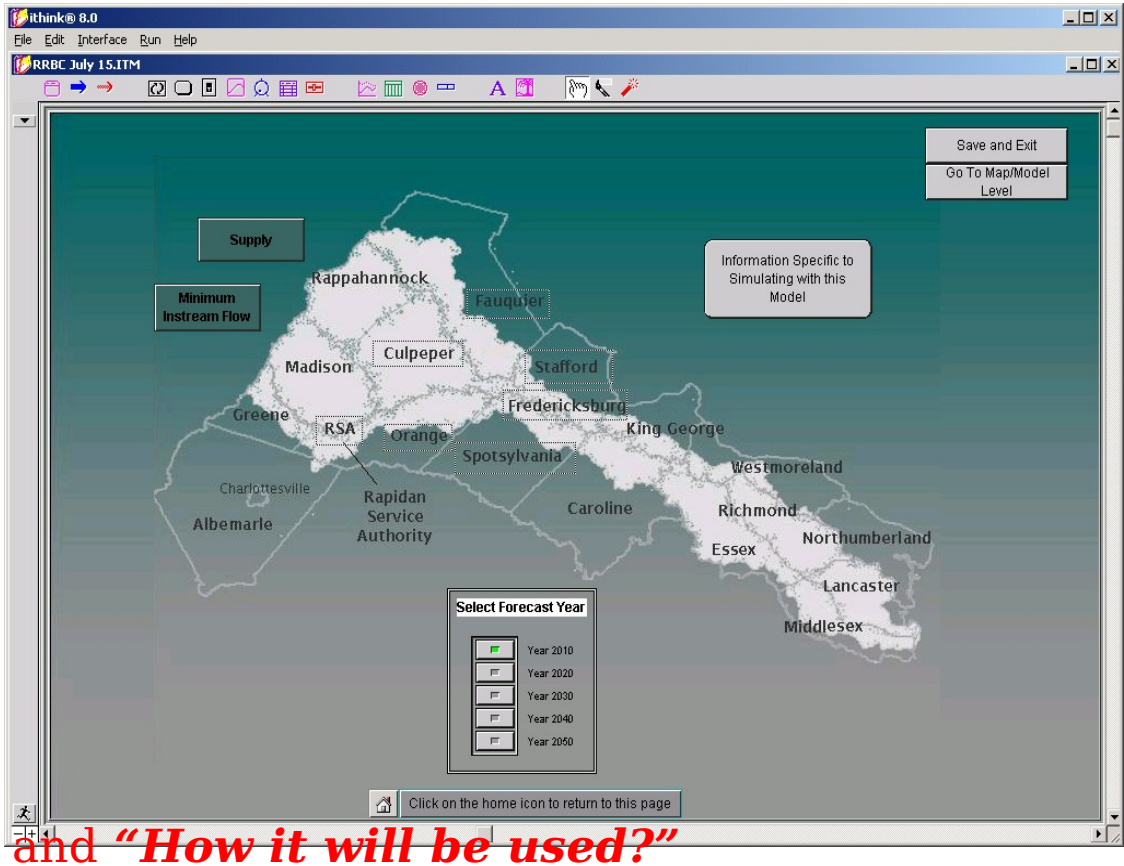
SVP foundations: Technical Analysis Models

- Models are visual, processes transparent
- Public and experts work together
- Process and model help find win-win solutions



Remember to ask:
"Who will use the model?" and ***"How it will be used?"***

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History of SVP

- Water Supply for Washington DC area
  - Systems analysis and collaboration among utilities lead to acceptable reliability without any new mainstem dams on the Potomac
- Formalized through National Drought Study (1988-1994)

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Applications and proponents are growing

- Rappahannock River (VA) water supply planning – *Va Tech and IWR*;
- Middle Rio Grande River (NM) water allocation and ESA issues – *Sandia National Labs*;
- Drought Exercises for the Potomac River (DC) – *Interstate Commission for the Potomac River*;
- Roanoke River – *Hydrologics, Inc., TNC, U.Va*;
- Okavango River (southern Africa) – *Natural Heritage Institute*;
- Nile River Basin – *World Bank*.

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Application – National Drought Study- five case studies

- Boston – technical success
- Norfolk – failure
- Kanawha Basin, WV – Clear success
- Marais des Cygnes – Osage – some success
- Cedar-Green River Basin, WA (Seattle –failure, Tacoma – success)

We learned from all of them

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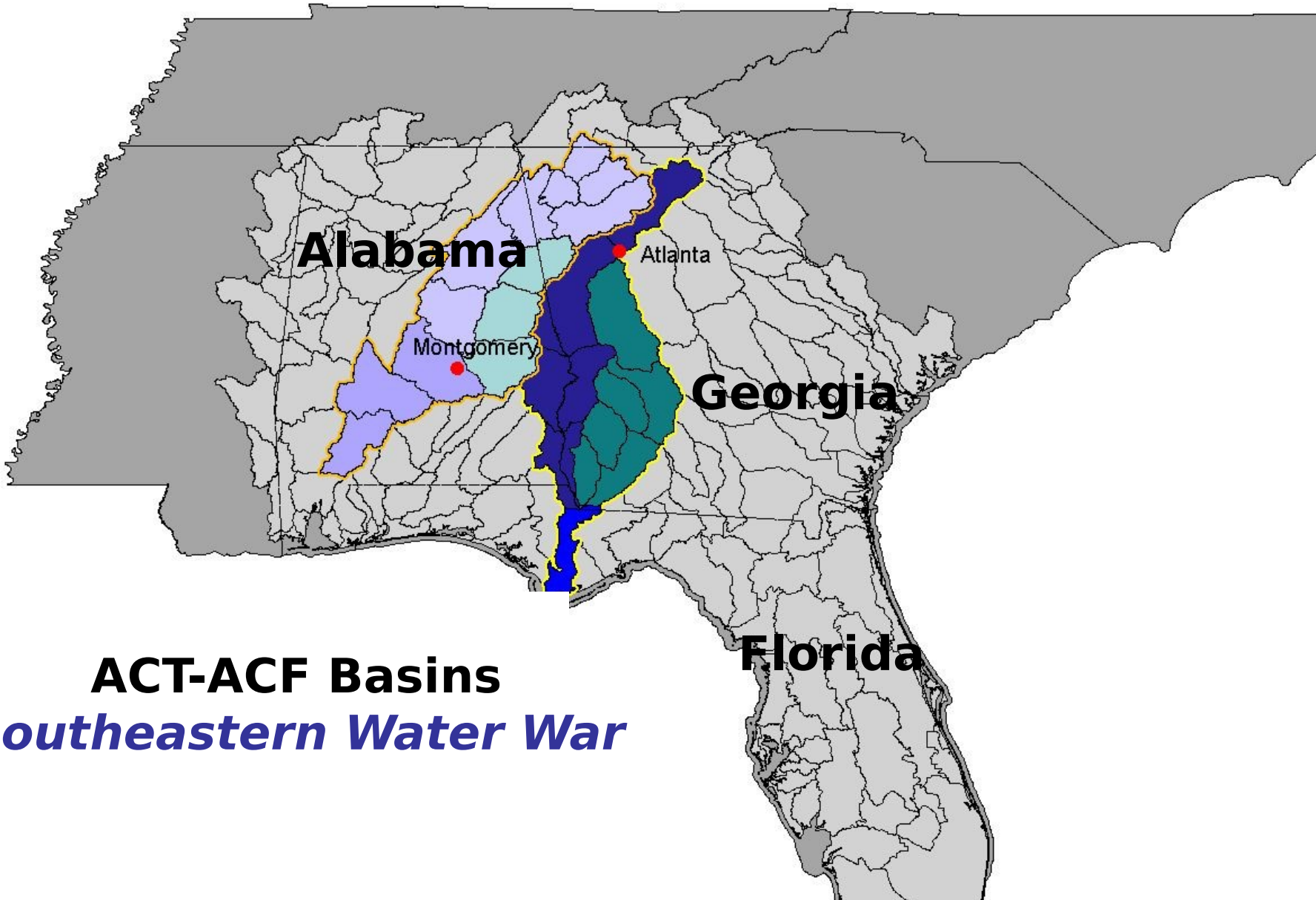
Application – ACT-ACF



ACT-ACF Basins

Southeastern Water War

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Application – ACT-ACF

- Corps reallocation of Lake Lanier for Atlanta drinking water challenged in court by Alabama and Florida
- Three states & Corps asked to settle out of court
- Planning efforts failed - Shared Vision Planning used as last resort
- Integrated
  - water use forecasting,
  - economic studies, and
  - environmental analysis

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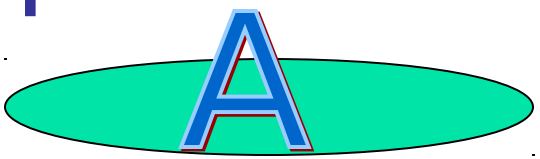
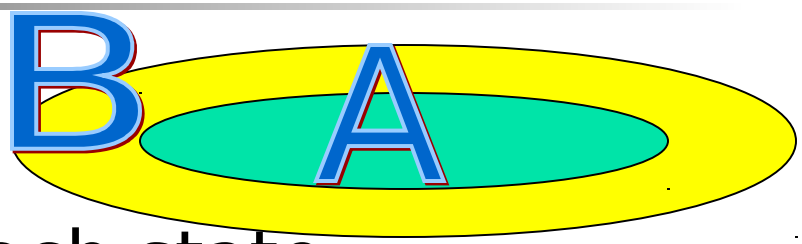
Applying Circles of Influence: concept to the ACT-ACF



Circle A

- Corps planner/modeler
- University of Washington modelers
- Two planner/modelers from each state and the Corps of Engineers
- 1 working meeting per month
- Weekly teleconference with agenda and summary memo
- E-mail
- Website access to all products

Circles of Influence: ACT-ACF



Circle B

- Water departments in each state
- Regional electric power companies
- City water departments
- Natural resources agencies
- Lake managers
- Navigation industry
- 6-8 working meetings per year

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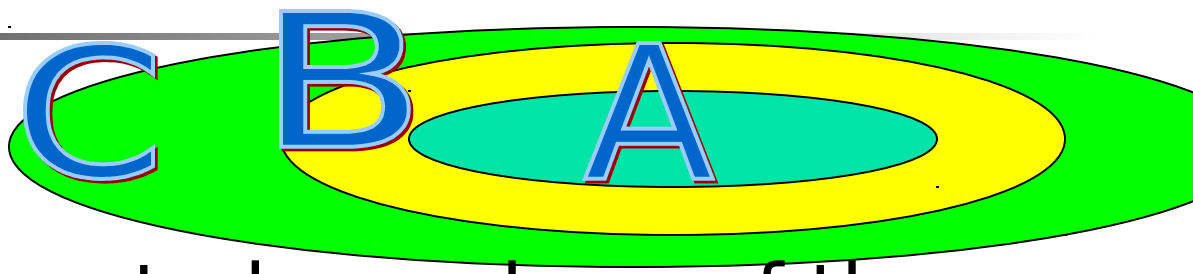
Circles of Influence: ACT-ACF



Circle C –

- The most interested members of the public
- Farmers
- Bass Fishermen
- Technical experts in subsidiary studies (recreation, fish and wildlife, etc)
- 2 two day workshops per year

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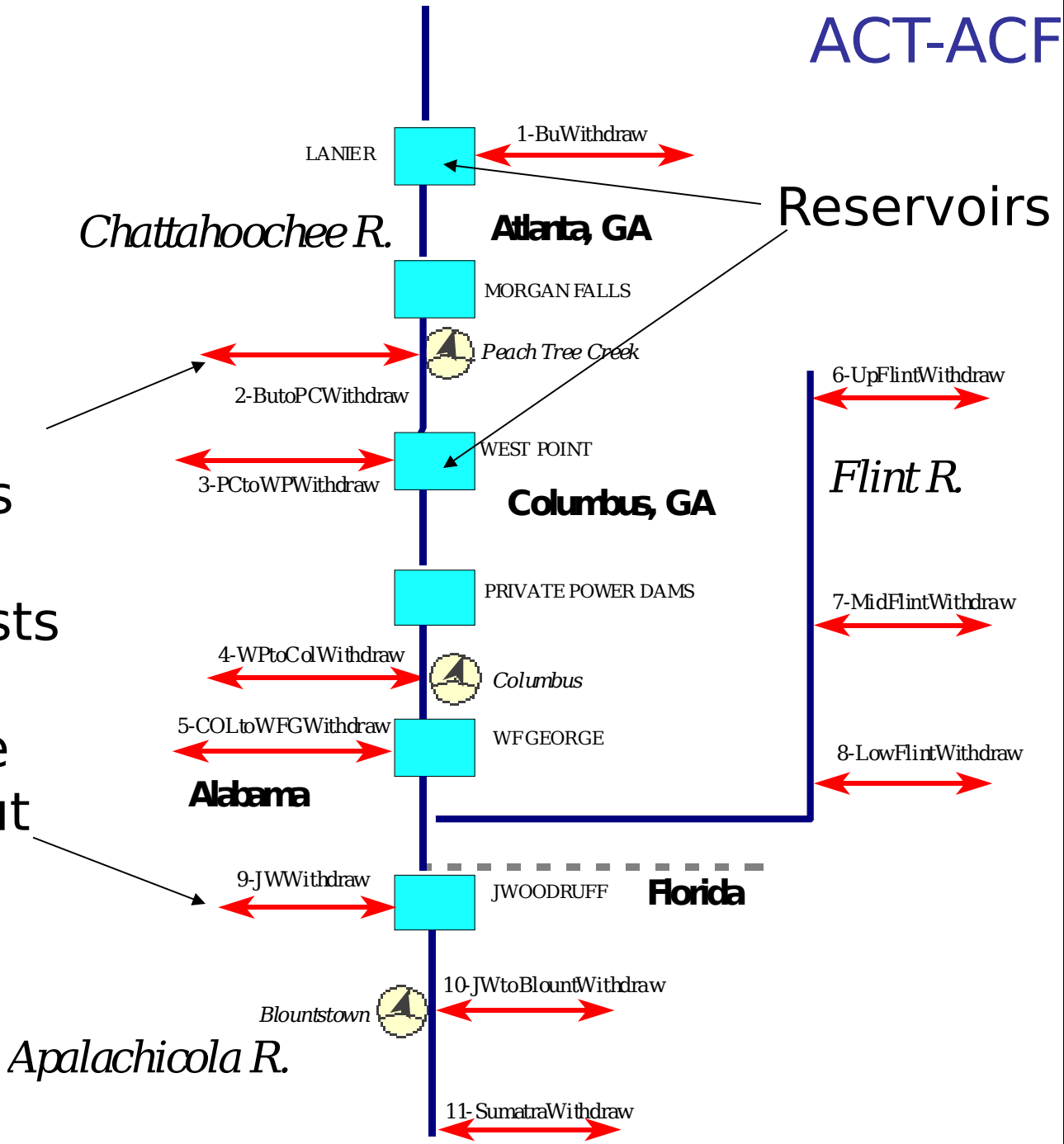
The ACF System

- Inflow and withdrawal nodes for all uses
- Demand forecasts through 2050 for farm and city use
- With and without conservation



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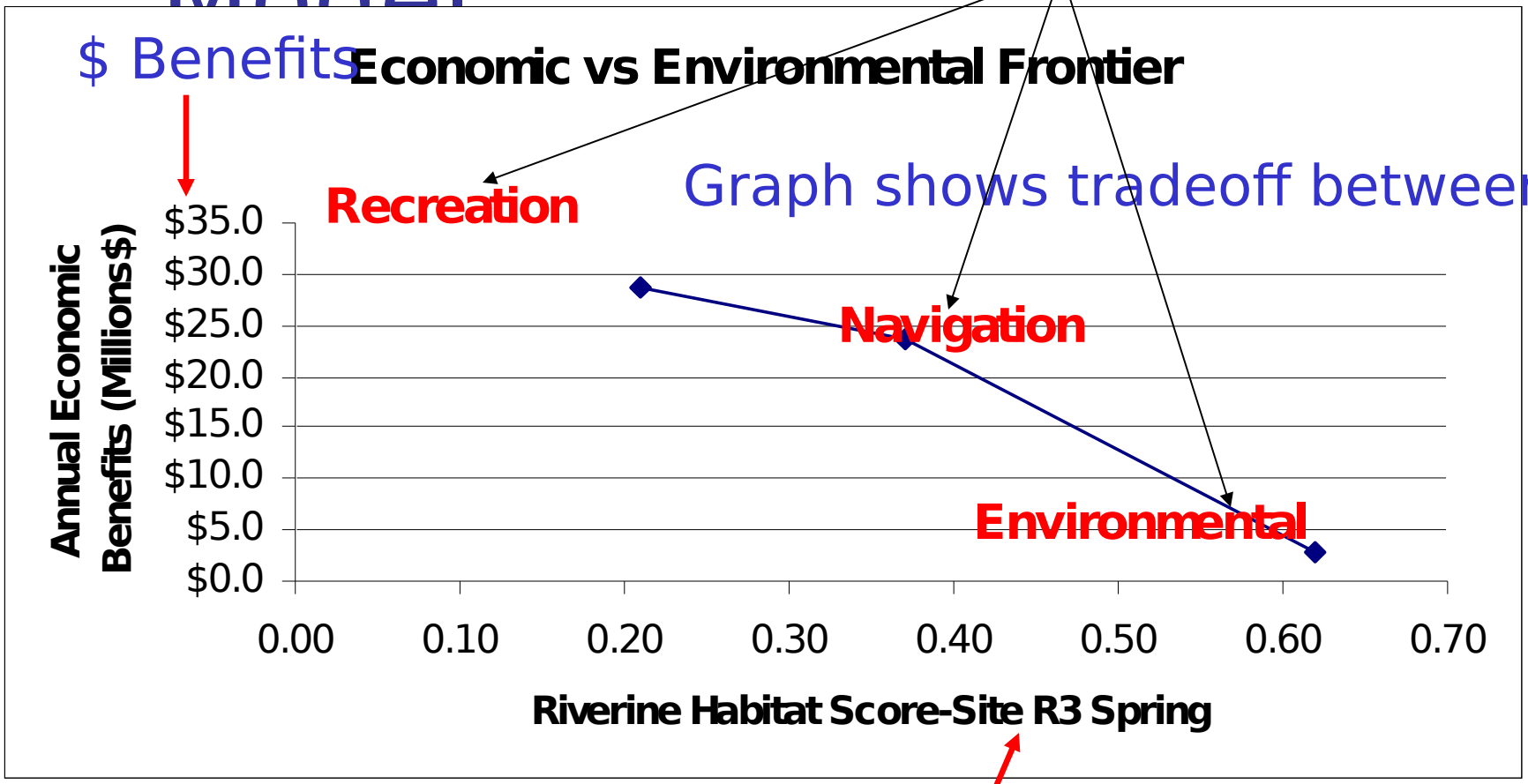
Evaluation using Shared Vision Model

For plans that favor these purpo

$ Benefits



Graph shows tradeoff between

And riverine habitat quality

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ACT-ACF SVP effort

- Led to first interstate compacts in the Southeast
- But, after 12 years and $30 million, compact expired August 31, 2003 without allocation agreement – back to court ☹

Application - Lake Ontario Regulation Study

- Five year $25 Million study on re-regulation of Lake Ontario-St. Lawrence River
- Co-sponsored by the US and Canada through the International Joint Commission
- Interest groups: Navigation, Hydropower, M&I water supply, Environment, recreational boating, coastal (lake) erosion, lake vs river users
- SVMs help interest groups identify and begin to quantify the relationships between hydrology and their interests.

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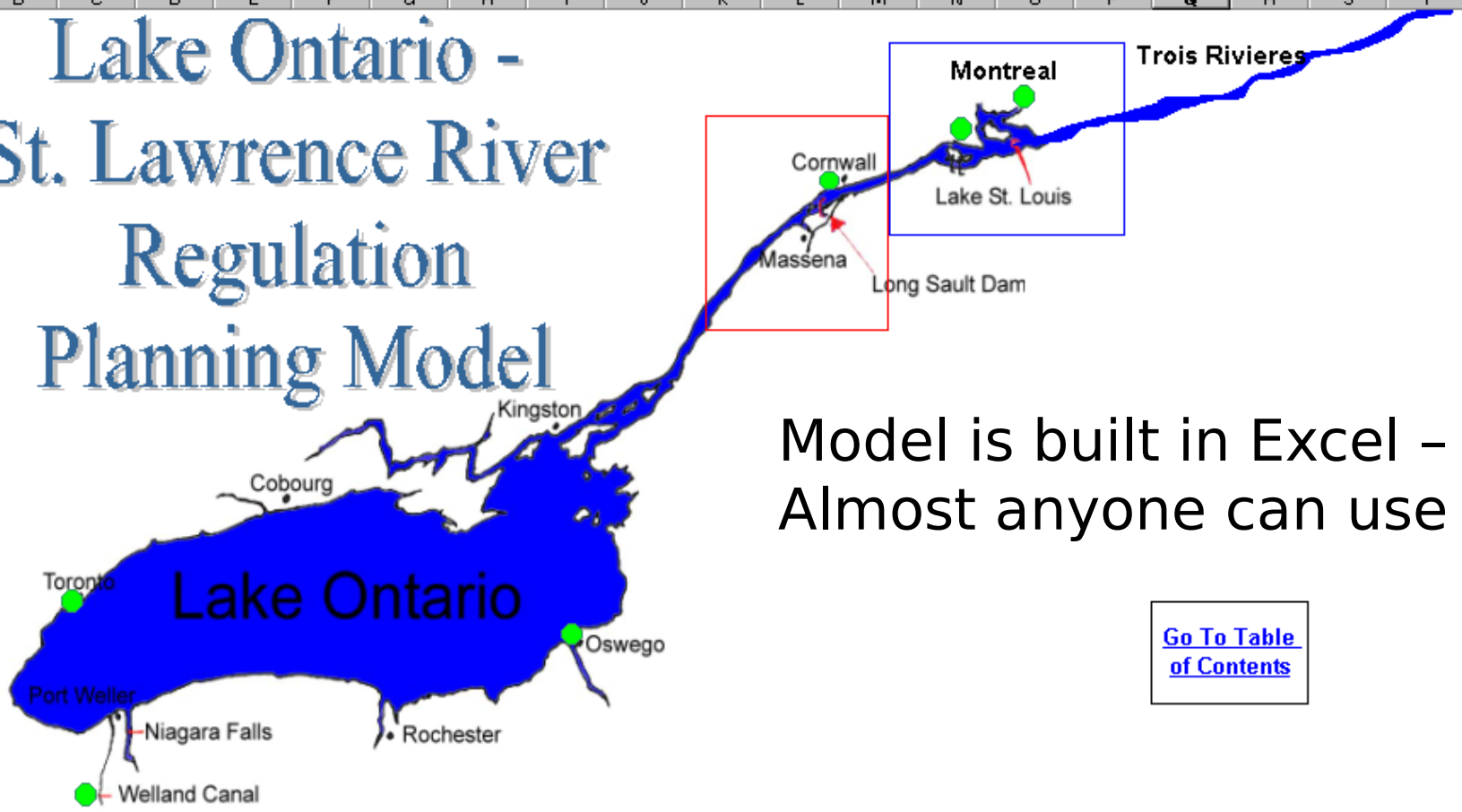
Ontario

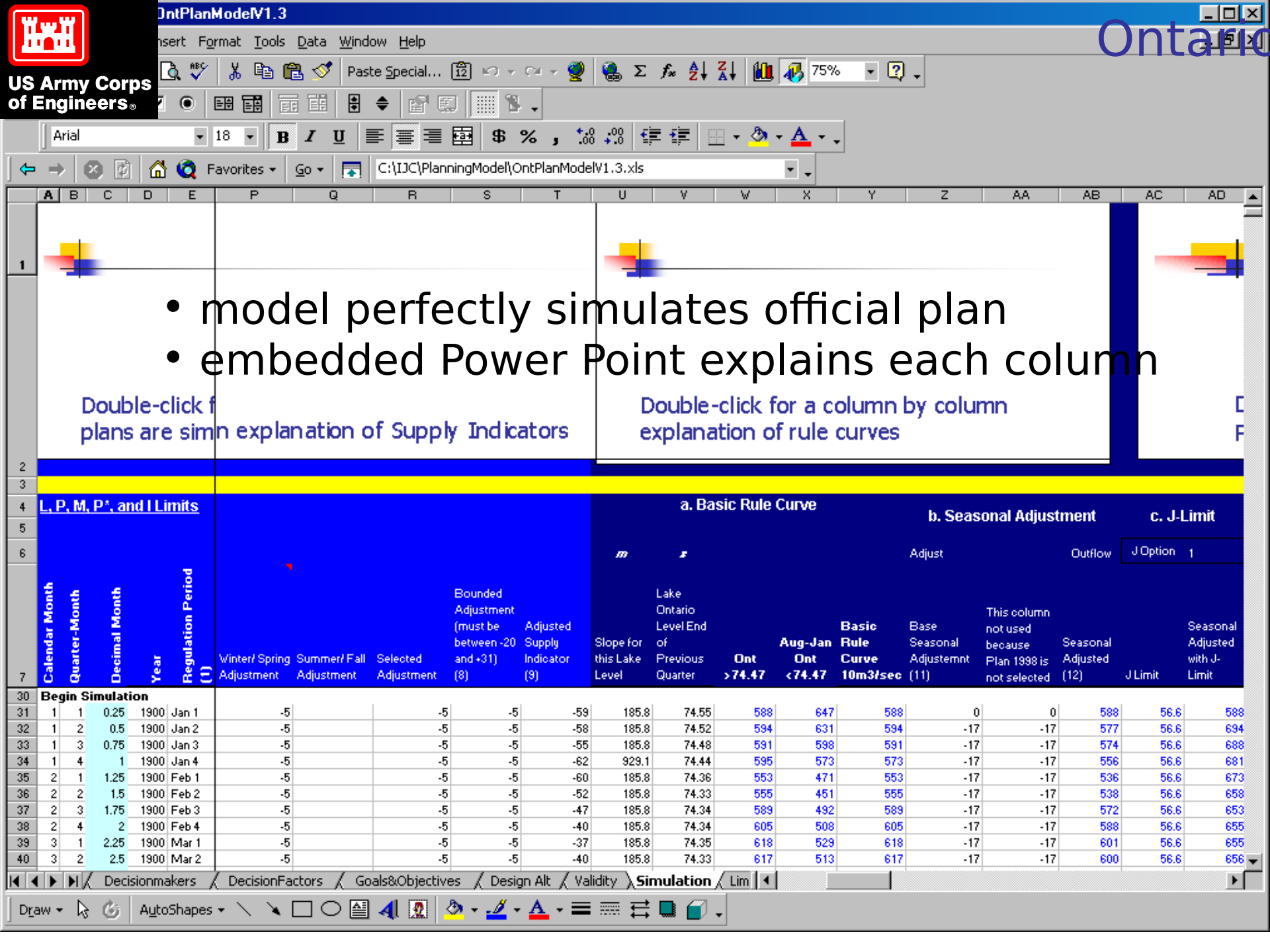
Lake Ontario - St. Lawrence River Regulation Planning Model



Model is built in Excel –
Almost anyone can use it

Go To Table of Contents

Cover | Contents | Decisionmakers | DecisionFactors | Goals&Objectives | Design Alt | Validity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• model perfectly simulates official plan
• embedded Power Point explains each column
Double-click f
plans are simn explanation of Supply Indicators
Double-click for a column by column
explanation of rule curves
L, P, M, P*, and I Limits
a. Basic Rule Curve
b. Seasonal Adjustment
c. J-Limit
J Option 1
Calendar Month
Quarter-Month
Decimal Month
Year
Regulation Period (1)
Winter/ Spring Adjustment
Summer/ Fall Adjustment
Selected Adjustment
Bounded Adjustment (must be between -20 and +31) (8)
Adjusted Supply Indicator (9)
Slope for this Lake Level
Lake Ontario Level End of Previous Quarter
Ont >74.47
Aug-Jan Ont <74.47
Basic Rule Curve 10m3/sec
Adjust
Outflow
Base Seasonal Adjustemnt (11)
This column not used because Plan 1998 is not selected
Seasonal Adjusted (12)
J Limit
Seasonal Adjusted with J-Limit
Begin Simulation
1 1 0.25 1900 Jan 1 -5 -5 -5 -59 185.8 74.55 588 647 588 0 0 588 56.6 588
1 2 0.5 1900 Jan 2 -5 -5 -5 -58 185.8 74.52 594 631 594 -17 -17 577 56.6 694
1 3 0.75 1900 Jan 3 -5 -5 -5 -55 185.8 74.48 591 598 591 -17 -17 574 56.6 688
1 4 1 1900 Jan 4 -5 -5 -5 -62 929.1 74.44 595 573 573 -17 -17 556 56.6 681
2 1 1.25 1900 Feb 1 -5 -5 -5 -60 185.8 74.36 553 471 553 -17 -17 536 56.6 673
2 2 1.5 1900 Feb 2 -5 -5 -5 -52 185.8 74.33 555 451 555 -17 -17 538 56.6 658
2 3 1.75 1900 Feb 3 -5 -5 -5 -47 185.8 74.34 589 492 589 -17 -17 572 56.6 653
2 4 2 1900 Feb 4 -5 -5 -5 -40 185.8 74.34 605 508 605 -17 -17 588 56.6 655
3 1 2.25 1900 Mar 1 -5 -5 -5 -37 185.8 74.35 618 529 618 -17 -17 601 56.6 655
3 2 2.5 1900 Mar 2 -5 -5 -5 -40 185.8 74.33 617 513 617 -17 -17 600 56.6 656
Decisionmakers
DecisionFactors
Goals&Objectives
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Plan Comparison

Comparison Matrix

Management Goals

Plans

Plan	Economic Prosperity	EnvironmentalProsperity	Fairness	International
Baseline Plan	0	0	0	0
Plan A	+	++	-	+
Plan A	+	++	-	+
Plan D	-	--	+	++

- decision hierarchy is programmed mathematically from dozens of performance indicators
- assumptions are debated, developed in workshops
- bottom line – is new plan better than what we have?

Limits | CommNav | Wetlands | Coastal | RecBoating | Municipal | H&H Graphs | Compare | Lit

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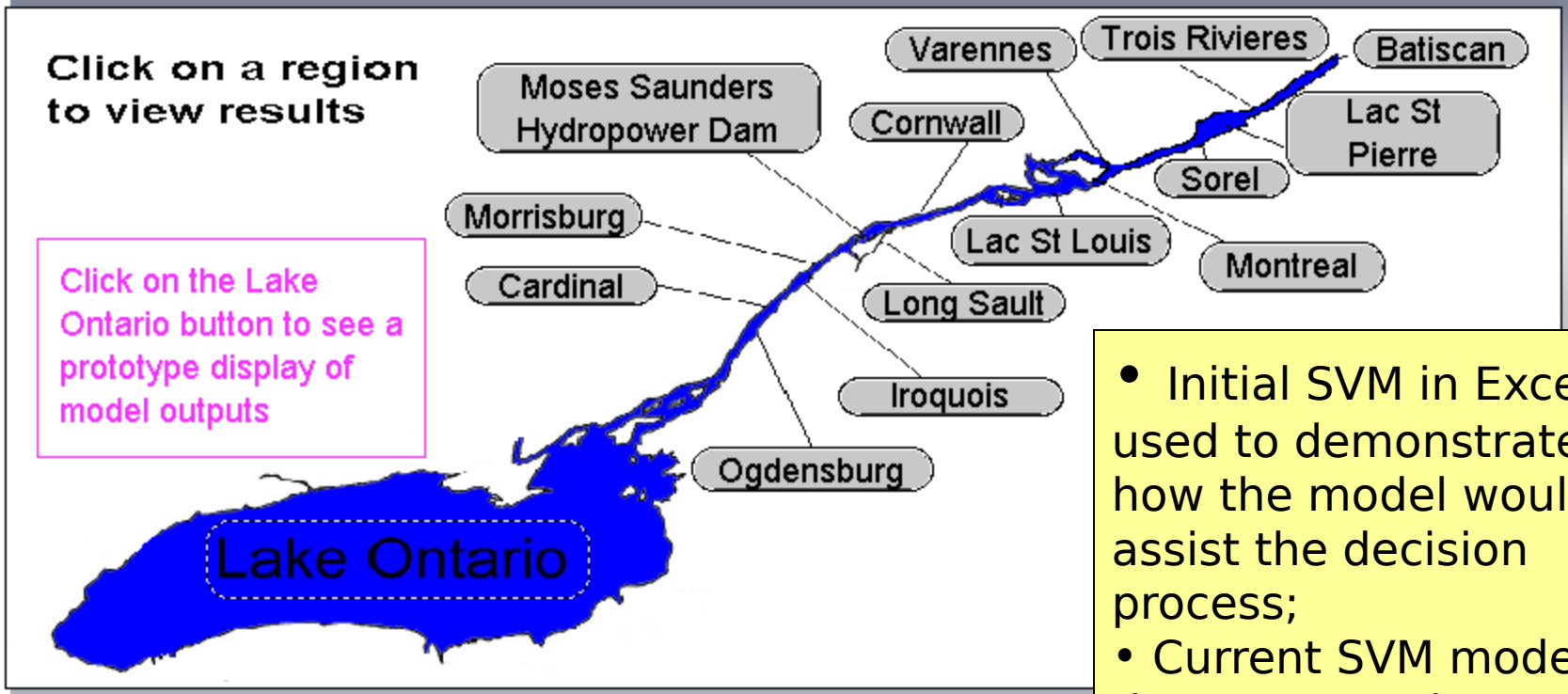
Help

STM

Conceptual Draft of the Shared Vision Model for the Formulation and Evaluation of Alternative Plans to Regulate Lake Ontario levels and releases.

Performance against criteria | Model Results by TWG



- Initial SVM in Excel used to demonstrate how the model would assist the decision process;
- Current SVM models the system using Stella, a generic, object-oriented program.

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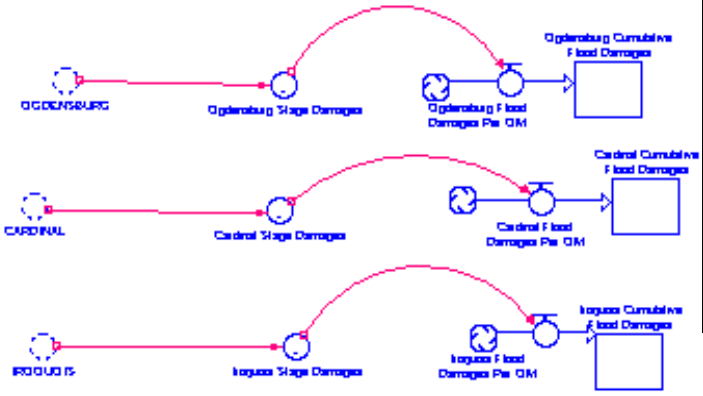
.STM

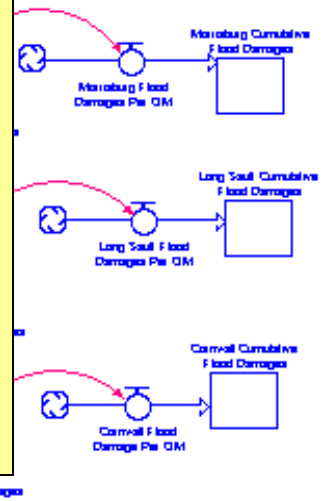
International Section Flooding Damages

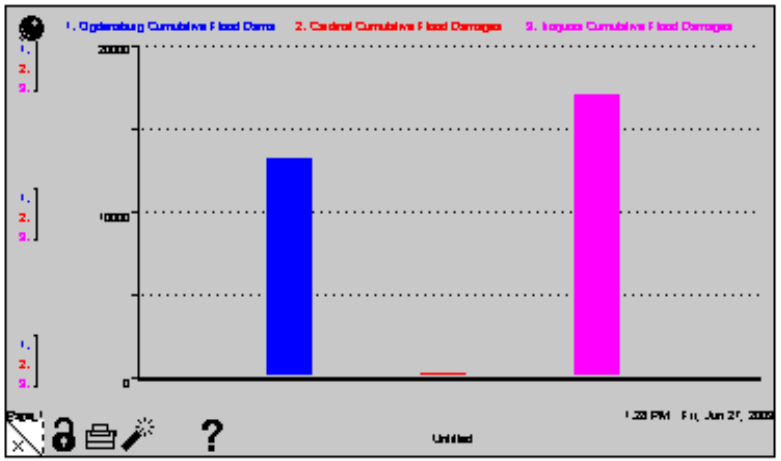
Click to View Morrisburg, Long Sault & Cornwall

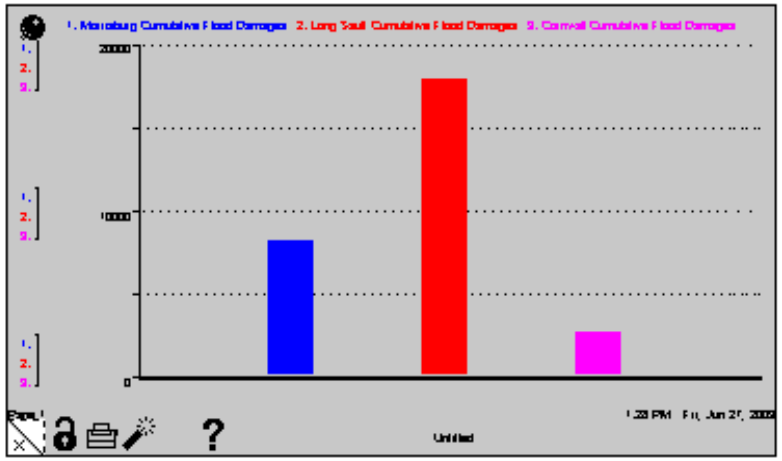
Ogdensburg, Cardinal and Iroquios Flood Damage



- Stella has been the platform of choice for IWR's shared vision modeling work because of its flexibility and power;
- other practitioners have used other software.


Morrisburg Flood Damages Per OM
Morrisburg Cumulative Flood Damages
Long Sault Flood Damages Per OM
Long Sault Cumulative Flood Damages
CORNWALL
Cornwall Stage Damages
Cornwall Flood Damages Per OM
Cornwall Cumulative Flood Damages





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Wrap-up
Why Shared Vision Planning?

- SVP can be applied to any water resource problem where stakeholders and vetoers are willing to come to the table;
- SVP puts the burden on stakeholders to identify the *what can be done* and *what ought to be done*.
- If stakeholders can agree on the facts and relationships, the debate can concentrate on values and tradeoffs.
- The shared vision model gives stakeholders the tools to structure and facilitate the debate.

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Shared Vision Planning is **NOT**

- Just a neat computer model
- Just collaboration
- Always the answer - SVP does not promise to eliminate conflict. The shared vision process may not always produce agreement - some stakeholders may elect to negotiate in bad faith or to purposefully undermine the process.

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Shared Vision Planning **is**

- Collaboration
- Transparency
- A systems approach
- About building trust (through the model and process)
- A way to improve the chances of identifying mutually satisfactory alternatives.

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Future

- More and more use of shared vision planning because:
  - Increased conflict over water
  - Increased recognition of need for collaboration
  - Need to infuse collaboration with technical rigor
- Regional SVP studies will rigorously establish environmental and other priorities
- More and more computer integration – internet, GIS, satellite data, etc.
- Cheaper, faster, better.

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For more information

http://www.SharedVisionPlanning.ne

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IWR
INSTITUTE FOR WATER RESOURCES

September 15, 2003

Shared Vision Planning

Shared Vision Modeling

National Drought Study

Fairweather Demo

Case Studies

Literature & Links

Shared Vision Planning

Shared vision planning promotes good resource management by engaging the views and issues of the stakeholder who will be impacted by the outcomes of the planning process from the beginning.

Throughout the natural resources profession terminology and words gain momentum and become "buzz" words to represent certain causes without ever achieving a common definition or understanding of what that term entails. Examples of such terms include; sustainability, watershed management and integrated resource management. These represent terms that are used often by different agencies, groups or persons and often represent different definitions. Shared vision planning is in jeopardy of meeting the same demise.

Shared vision planning is not just collaboration. Shared vision planning is not just colorful models. Shared vision planning is not just something contrived within the dark recesses of the Institute for Water Resources.

Shared vision planning is a planning process that incorporates collaboration, sound technical analysis, and tried and true planning principles into a practical forum in which resource management decisions are made.

The following three sections further elaborate on the definition of shared vision planning through conceptual and historical discussions.

My Computer

Shared vision planning is built on three foundations:

- Planning principles;
- Disciplined public involvement process; and
- Technical system models

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Future

- Key will be to build virtual management communities connected to widest expertise
- Creating big new integrated bureaucracies not effective
- Communities of problem solvers formed around problem, focus on the problem
- Internet models will be the working space

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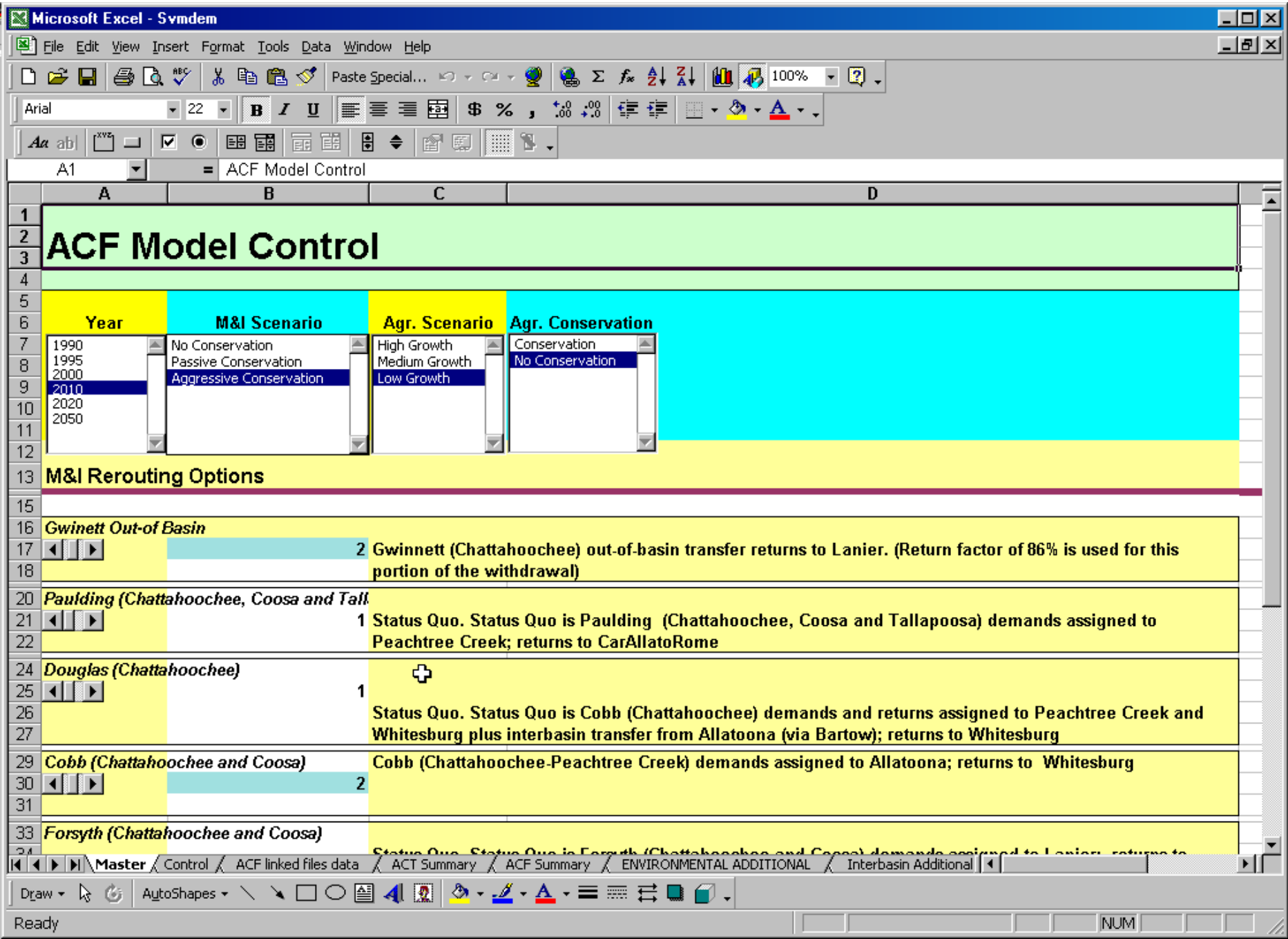
Circles of Influence

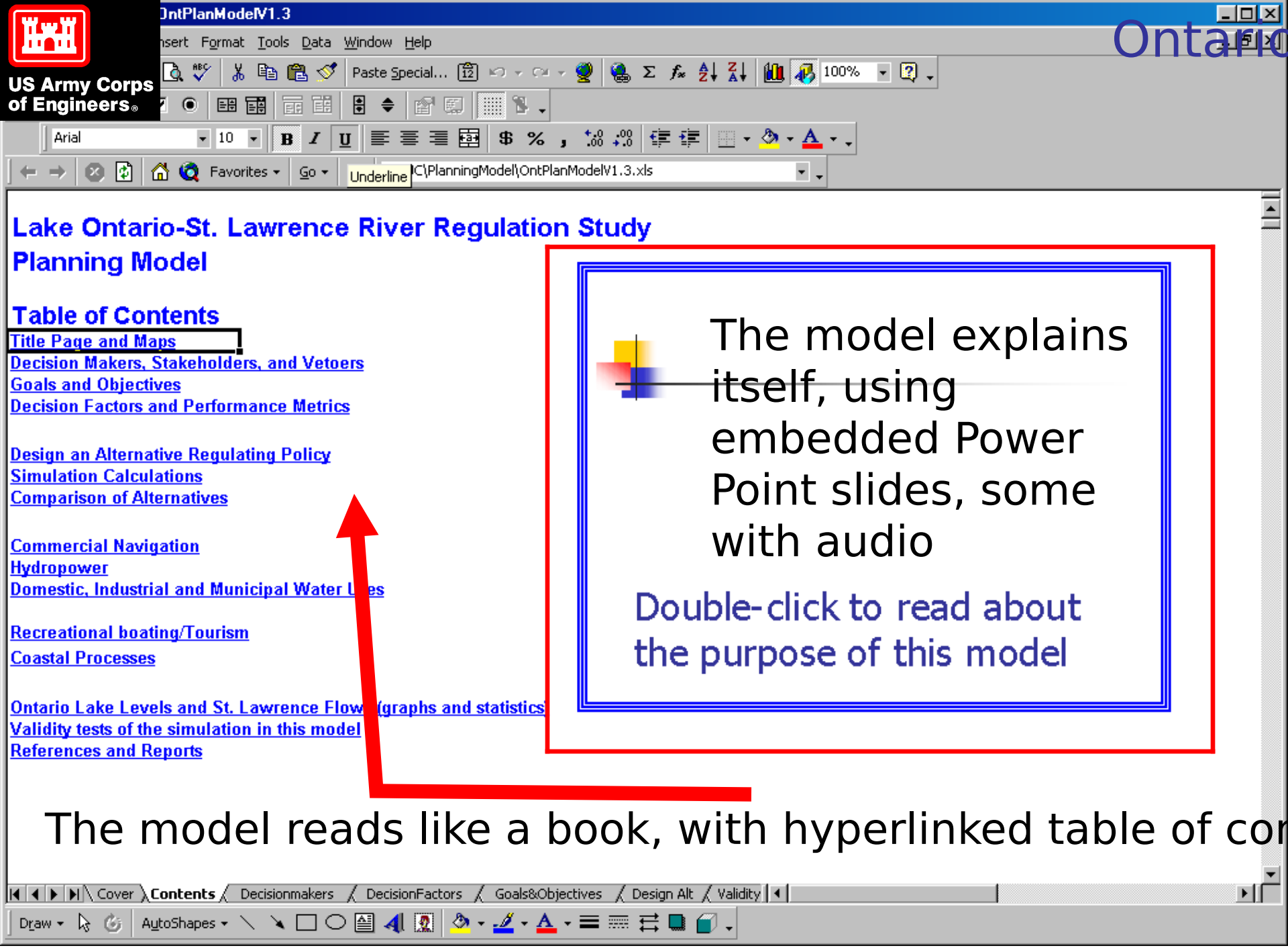
Bad planning experiences bankrupt trust!

Four theoretical foundations:

- Morton Deutsch (1950's) - successful experience with cooperation leads to the development of more general and long-range cooperative orientations.
- Mansur Olson – people commit to social or structural change on the basis of their awareness of the individual benefits and costs associated with their commitments.
- Charles Tilley (1960's) - social structural change comes from the collision of long-term historical trends and purposeful efforts to affect the course of change.
- Richard Emerson (1970's) - People will commit to an exchange system even if there are individual costs if they have a stake in the strategy itself and believe that rules for distributing costs and benefits over time are fair.

Double click to show movie of the ACF Shared Vision Model

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Lake Ontario-St. Lawrence River Regulation Study
Planning Model
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Title Page and Maps
Decision Makers, Stakeholders, and Vetoers
Goals and Objectives
Decision Factors and Performance Metrics
Design an Alternative Regulating Policy
Simulation Calculations
Comparison of Alternatives
Commercial Navigation
Hydropower
Domestic, Industrial and Municipal Water Uses
Recreational boating/Tourism
Coastal Processes
Ontario Lake Levels and St. Lawrence Flows (graphs and statistics)
Validity tests of the simulation in this model
References and Reports
The model explains itself, using embedded Power Point slides, some with audio
Double-click to read about the purpose of this model
The model reads like a book, with hyperlinked table of co
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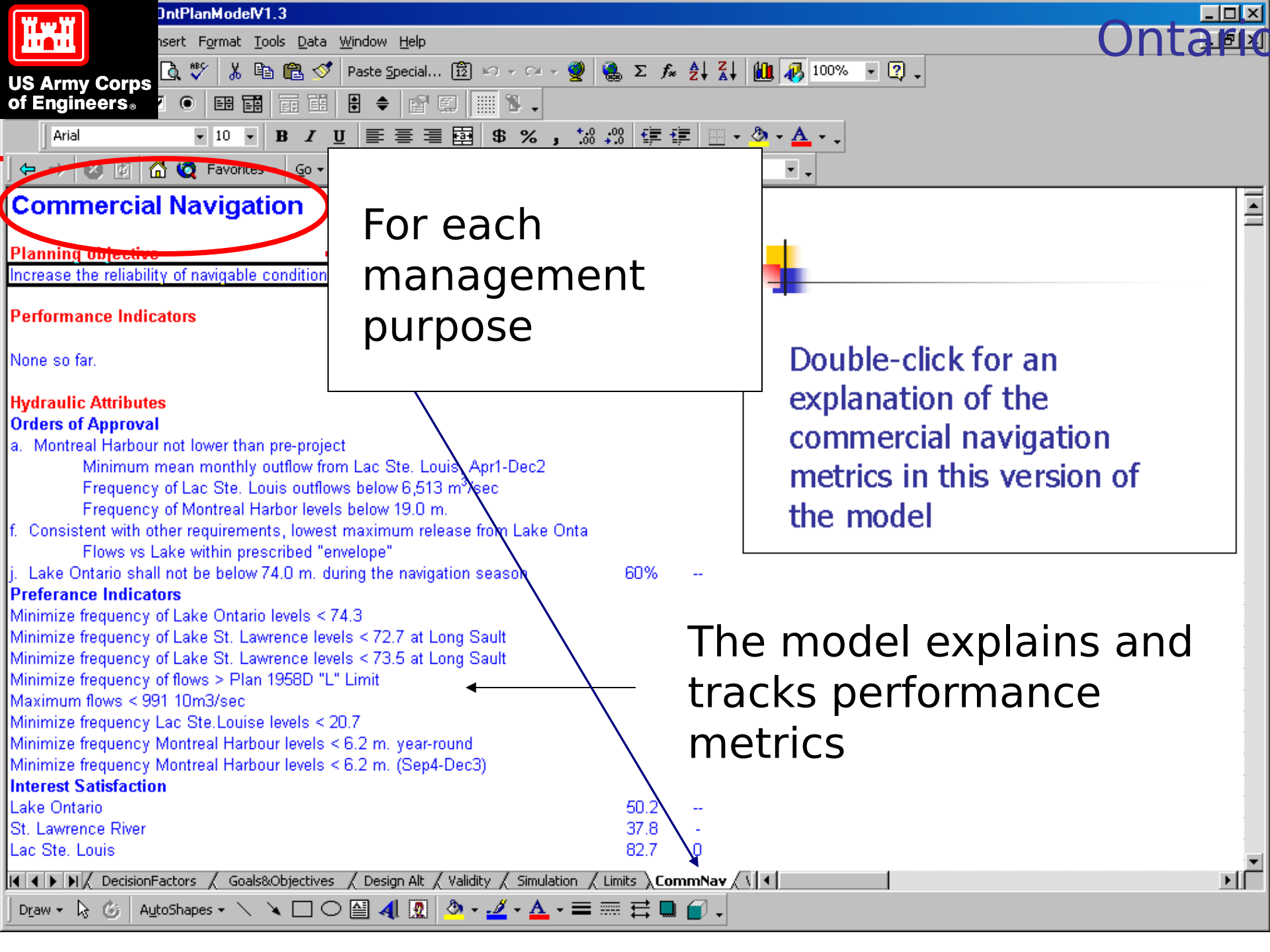
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Ontario
Commercial Navigation
Planning Objective
Increase the reliability of navigable condition
Performance Indicators
None so far.
Hydraulic Attributes
Orders of Approval
a. Montreal Harbour not lower than pre-project
Minimum mean monthly outflow from Lac Ste. Louis, Apr1-Dec2
Frequency of Lac Ste. Louis outflows below 6,513 m3/sec
Frequency of Montreal Harbor levels below 19.0 m.
f. Consistent with other requirements, lowest maximum release from Lake Onta
Flows vs Lake within prescribed "envelope"
j. Lake Ontario shall not be below 74.0 m. during the navigation season 60% --
Preferance Indicators
Minimize frequency of Lake Ontario levels < 74.3
Minimize frequency of Lake St. Lawrence levels < 72.7 at Long Sault
Minimize frequency of Lake St. Lawrence levels < 73.5 at Long Sault
Minimize frequency of flows > Plan 1958D "L" Limit
Maximum flows < 991 10m3/sec
Minimize frequency Lac Ste.Louise levels < 20.7
Minimize frequency Montreal Harbour levels < 6.2 m. year-round
Minimize frequency Montreal Harbour levels < 6.2 m. (Sep4-Dec3)
Interest Satisfaction
Lake Ontario 50.2 --
St. Lawrence River 37.8 -
Lac Ste. Louis 82.7 0
DecisionFactors
Goals&Objectives
Design Alt
Validity
Simulation
Limits
CommNav
For each management purpose
Double-click for an explanation of the commercial navigation metrics in this version of the model
The model explains and tracks performance metrics

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Select or Design a Regulating Plan

Return to Table of Contents

Return to Table of Contents | Look at Simulation Worksheet

Comparison of this plan to the baseline

Selected: Plan A

Pick a basic alternative to evaluate

1958-D
Plan A
Plan B
Plan C
Plan D
Customized Plans

This plan has no supply indicator adjustments for how wet or dry it has been (although higher lake levels naturally cause higher releases) and there are no limits of any sort on the release because of season (P and M Limits) or ice (I Limit) or sudden changes (J Limit). The February-July "curve of zero supply indicator is used.

- Model users can evaluate existing alternat
- Or create their own

L Existing / Modified — as26 — 1 / 1.1 / 1.2 / 1.3 — as42

M 100% / 95% / 90% / 85% — at26

J Always 566 m3/sec / 1132 m3/sec if Ontario > 76.2 / Enter your own — aq26 — Custom Rule Curv — Adjust rule curves

P 1 / 1.1 / 1.2 — aw27

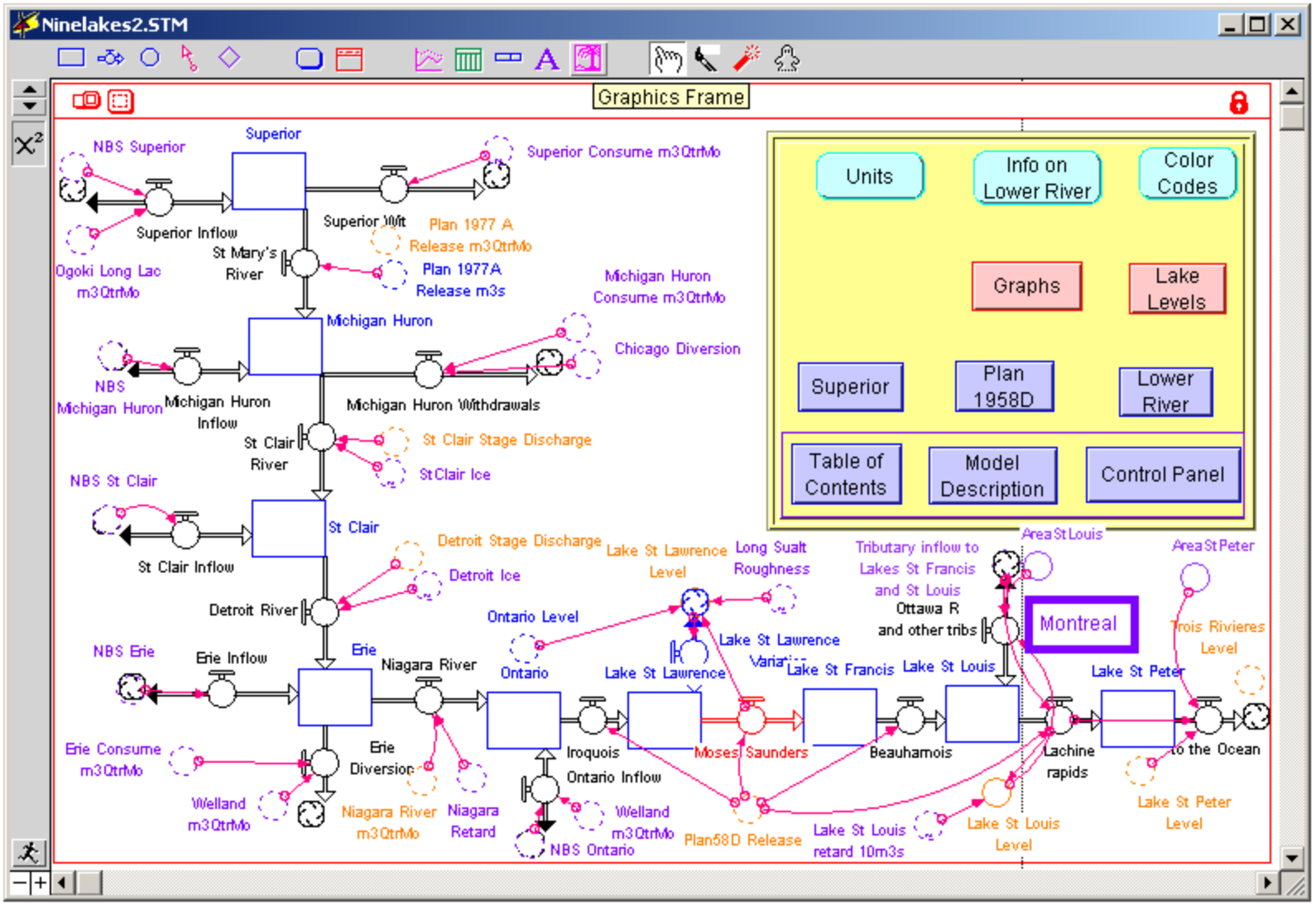
P* 1 / 0.9 / 0.8 — aw28

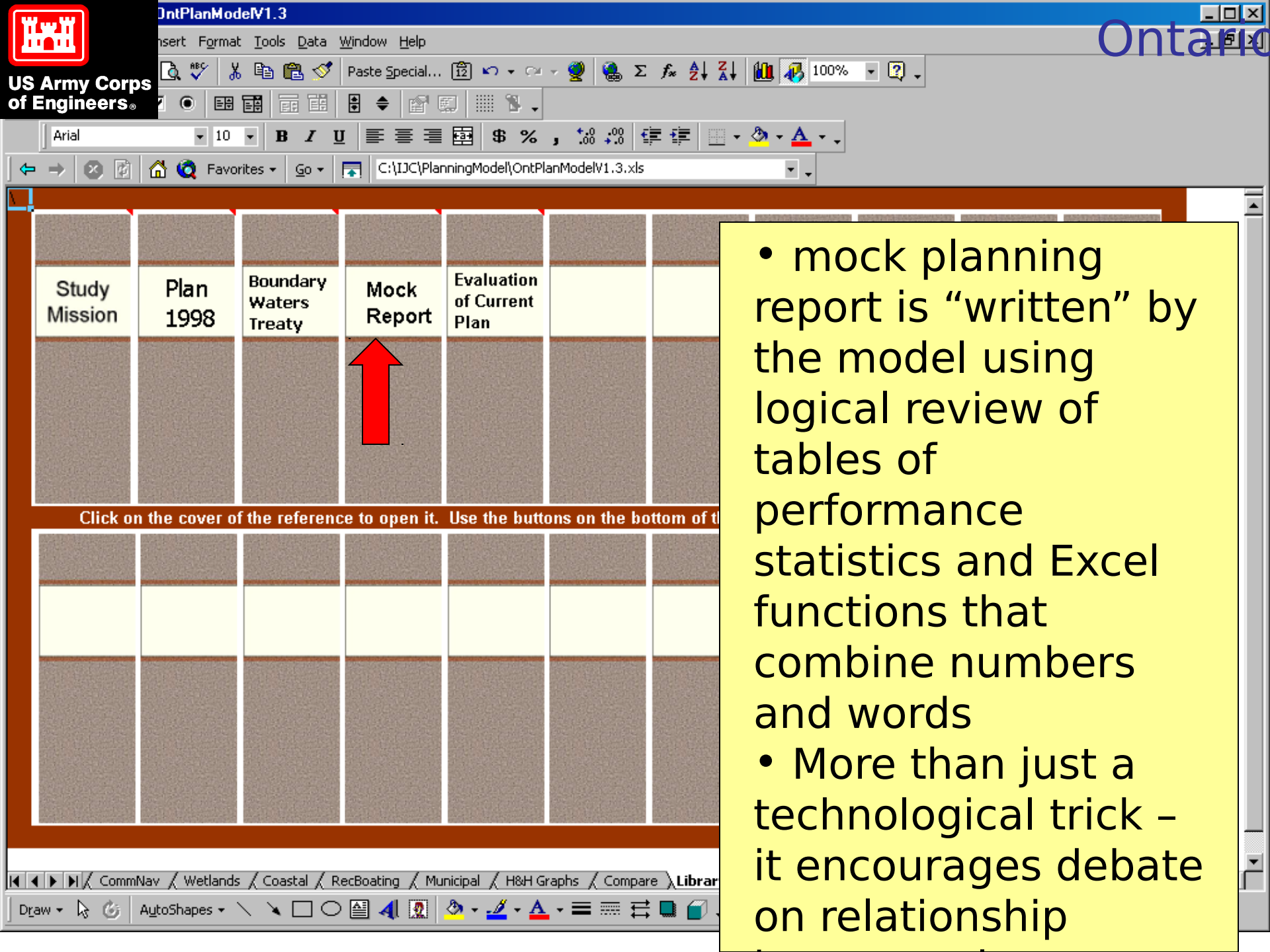
A pre-defined plan has been selected.

L	Existing
M	Existing
J	Existing
P	Existing
P*	Existing

Contents | Decisionmakers | DecisionFactors | Goals&Objectives | Design Alt | Validity | Simu

Edit Model Run Help





Ontario

- mock planning report is “written” by the model using logical review of tables of performance statistics and Excel functions that combine numbers and words
- More than just a technological trick – it encourages debate on relationship